

From the Author

ON

# THE NUMERICAL RATIO

OF

## DISEASE

IN THE

### ADULT MALE COMMUNITY.

TRACTED FROM THE SANITARY STATISTICS OF HER MAJESTY'S  
CUSTOMS, LONDON, FOR THE YEARS 1857-74.

BY

WALTER DICKSON, M.D., R.N.,

MEDICAL INSPECTOR, HER MAJESTY'S CUSTOMS.

Before the Section of Public Medicine at the Annual Meeting of the British Medical Association in Edinburgh, August, 1875, and Reprinted from the BRITISH  
MEDICAL JOURNAL.

LONDON:

1876.



## ON THE NUMERICAL RATIO OF DISEASE IN THE ADULT MALE COMMUNITY,

DEDUCED FROM THE SANITARY STATISTICS OF HER MAJESTY'S  
CUSTOMS, LONDON, FOR THE YEARS 1857-74.\*

By WALTER DICKSON, M.D., R.N., Medical Inspector,  
Her Majesty's Customs.

---

---

AN acknowledged desideratum in the public medicine of this country is the registration of disease, and this Association has long urged the importance of making some attempt in this direction, and, through its recognised organs, has more than once brought the subject prominently before the administrative authorities. There can be no doubt of the great public utility of such a scheme, were it practicable to carry it out with even a moderate degree of efficiency and completeness.

The statistics of death, although confessedly far from perfect, yield a great amount of most valuable and trustworthy information with regard to the comparative mortality of age, sex, and place. They present a very fair index of the relative prevalence of those diseases which are normally fatal, as consumption, cancer, organic disease of the heart and other vital organs, and they also give some clue to the progress and epidemic intensity of zymotic diseases, the ratio of the mortality of which to the recoveries is, from the accumulated experience of many years, approximately known. The influence of extreme atmospheric conditions, more especially on the old and young, can also be estimated with tolerable accuracy from the Registrar-General's returns, those of last winter being a striking instance. Their great importance in the innumerable calculations, social, economical, and political, which are based on the probability of human life, and which furnish us with the knowledge to prevent its waste, is too obvious to require comment here. Our country has enjoyed a laudable pre-eminence in this department of statistical science from the time, two centuries ago, when Graunt and Petty utilised the London and Dublin bills of mortality, and the celebrated Dr. Halley submitted to the Royal Society a life-table calculated from the birth and death-rates of Breslau (*Philosophical Transactions*, 1674-93) until now, when the labours of the Registrars-General

---

\* Read before the Section of Public Medicine at the Annual Meeting of the British Medical Association in Edinburgh, August 1875.

of the three kingdoms, always progressing and improving, have become the models for other countries to imitate. They place before us weekly most interesting results, in reliable mortality tables, not only of our own cities, but of the capitals of Europe and of the principal cities of India and America, which are thus compared and utilised for the benefit of mankind.

But there are many diseases of interest and importance not necessarily, and indeed seldom directly, fatal, concerning which there is little information to be gleaned from the Registrar-General's returns. Some of these, as, for example, rheumatism and its congeners, are among the most prevalent and painful disorders that afflict the adult male community in all ranks of life, and cripple to the most serious extent the bread-winning energies of that most valuable class of our population. Hence a better knowledge of such maladies in regard to their numerical ratio, their prevalence at various ages, in different occupations and localities, and the influence of season and climate on their causation, progress, and duration, would probably be of even greater practical value in a social and economical, as well as a medical, point of view than similar information in reference to other diseases which figure far more prominently in the bills of mortality for the United Kingdom.

The annual reports of the army and navy give an accurate account of the health of the forces serving on the home stations; but the results are, of course, somewhat modified by the foreign and tropical service which it is the lot of our troops and seamen at some time or other to undergo, and also by the comparative youthfulness of the individuals, most of whom leave these services before they have attained the prime of life. The same may be said of the police force throughout the kingdom, a fine body of men, older, in the average, than soldiers, but equally fluctuating in individual composition, seldom remaining for more than a few years in the force, and always, as in the military and naval services, discharged when suffering from any chronic illness.

The Poor-law and prison records might yield much information concerning too large a section, unfortunately, of the people suffering from disease engendered of poverty and privation and vice, and therein differently circumstanced from the well-doing majority of our industrious classes. It is probably not in barracks or ships, not in prisons or workhouses, but rather in the tables of the countless benefit societies organised by the workers of the community for mutual aid in sickness, that a true foundation for such sanitary statistics is to be looked for;

and it would, doubtless, be greatly to the advantage of these societies to obtain trustworthy data for their guidance, inasmuch as at present, through miscalculation and mismanagement, the result oftener probably of ignorance than of dishonesty, a large proportion of these institutions are well known to be in a most unsatisfactory financial condition, causing bitter disappointment to their members, and sapping the cardinal virtues of thrift, prudence, and independence, so essential to the true well-being of an industrial community.\*

In the hope of contributing, in however small a degree, to the elucidation of so important and interesting a subject, I now venture to place before the Association a condensed summary of the sanitary statistics of a body of men who, by reason of their age, social position, and occupation, present, I think, a very fair type of the average adult male population of the middle class of life, that section of the people whose normal condition it is to support respectably by their daily labour families of five or six persons, and who consequently form the back-bone of every industrious and civilised community.

Among the duties appertaining to the office which I have the honour to hold is the medical charge of the subaltern Custom House officers of the port of London, averaging of late years about a thousand in number, of ages ranging from 25 to 65 years, and daily occupied from eight to twelve hours a day in duties of varied character, but in many instances involving considerable labour and exposure to the weather. One-fourth of this force are nominally resident at Gravesend, being stationed there for the boarding duties of the port ; and they spend most of their time day and night on board-ship ; every vessel from abroad, as it passes up the Thames, being visited and officers stationed on board each ship for a greater or less number of days for the protection of the revenue. The remainder, averaging recently 750 in number, are resident in London, and, with the exception of those who are employed in turn on night-duty, sleep at home. Their houses are for the most part situated in the eastern and southern suburbs of London, at a distance of two or three miles from the scene of their vocations. They are arranged in three sections : out-door officers, watermen, and messengers ; and, as the names imply, their duties are considerably diversified. Probably the most arduous work is that of the watermen, who are employed in examining all ships on arrival, more especially

---

\* These societies are stated, on high authority, to number four millions of members, and to possess property to the amount of eleven millions sterling. Their prosperity has, therefore, become a matter of vital national interest.

their holds and engine-rooms, which are of a very high temperature, many degrees above that of the air on deck ; and these officers are, therefore, much exposed to extreme vicissitudes in their "rummaging" duties, as well as having much muscular exertion in rowing about the river. The out-door officers are chiefly in charge of imports and exports, and are employed in the various water-side and water-guard duties of lockers, weighers, and tide-waiters in vaults and warehouses where goods subject to revenue are stored, or on the wharves and docks where they are landed. As fires are prohibited in such places, the exposure to cold in winter is considerable. These circumstances are mentioned thus incidentally to show that this body of men, with few exceptions, have as laborious duties to perform, and are as much subjected to the influence of climate, as any body of workers in the community.

They enjoy the advantages, common to all civil servants of the State, of permanent employment, fair remuneration, and the prospect of a pension when incapacitated by age or infirmity. They are all submitted to medical examination before entering the service, and are, therefore, presumably free from constitutional disease or patent defect, and in possession of fair physical strength. In consequence of successive changes in the tariff, their number until lately gradually decreased, no appointments having been made for some years to supply the vacancies which have occurred from death, superannuation, promotion, etc.; and the average age of the Customs officers is, therefore, considerably higher than it was a few years ago, and may be computed at present to be about 38 years : an important fact to be taken into account in relation to their sanitary condition. For upwards of half a century, records exist of the sickness and mortality of the force ; and these documents since 1854, when all the subaltern officers of Customs were placed under the immediate care and surveillance of the medical inspector, have been kept with increased minuteness and accuracy, so as to present a continuous and complete series of sanitary data, embodied in the weekly, quarterly, and annual tables and reports of the department.

During the twenty-eight years over which these reports extend, the mean annual number of the force in medical charge has varied from 1337, the maximum, to 923, the minimum. The mean strength of the whole period has been 1130. The mean age of the force has increased proportionally in the period from an annual average of 33 to 38 years, but may be assumed with tolerable accuracy to have

been during the period 35 years. We have, therefore, in the aggregate a body of 32,000 men in the prime of life as the basis of our calculations: and I will now submit to you the general results deduced from the experience of these twenty-eight years.

The mean daily number incapacitated for duty by reason of sickness or accident has been 29 per 1,000. The highest annual number was 37 per 1,000, the lowest 20 per 1,000.

The ratio of cases admitted to the sick list on the mean strength of the force has been 700 per 1,000; the annual mean ratio having varied from 820, the maximum, to 590 per 1,000, the minimum.

The mean duration of each case under treatment has varied from thirteen to twenty-one days, the mean of the whole period having been 15.5 days. As this period includes two Sundays, 13½ days would be the proportion in comparison with those who have no Sunday labour.

The time lost by each individual of the force has varied annually from fourteen days, the maximum, to ten days, the minimum. The mean time in the whole period lost by each person in consequence of disease and accident has been eleven days, or, deducting Sunday, 9.5 days per man in each year.

These figures demonstrate a very satisfactory state of health of the department, when the age, duties, and peculiar circumstances of the Customs officers are taken into consideration, and, as the table annexed shows, will compare favourably with the considerably younger men of the army and navy serving in the United Kingdom.

For many years, the London officers have been provided with medical attendance and medicines at the expense of the Crown; but, until eleven years ago, a stoppage was made on their pay during time of sickness, at first amounting to about one-half, and subsequently to about a fifth of their whole salary. In 1864, a very great boon was conferred on them by their being permitted, when sick, to retain the whole of their emoluments during the first six months of absence, and after that time to be placed on half-salary till removed from the sick list by death or superannuation. This privilege, although sometimes liable to be abused by the indolent and unscrupulous, and necessitating unremitting vigilance on the part of the medical officers, has unquestionably been highly beneficial in enabling officers, who could otherwise ill afford a pecuniary sacrifice, to avail themselves of timely remedial measures, and to procure rest at home, and such other comforts as their condition might require, to the great alleviation of disease and better prospect of recovery. The result is, that the sick

list has been heavier by about 25 per cent., but that acute disease is comparatively rare and seldom fatal, and the downward progress of incurable maladies has been much retarded. The immense majority of the cases (970 per 1,000) terminate in recovery and return to duty. Those who, after some months' treatment, are found to be still incapacitated are superannuated.

The mortality from disease has ranged from five to eighteen *per annum*, and shows for the twenty-eight years an annual mean death-rate of 11.5 per 1,000. Deaths from accident have averaged annually 1.3 per 1,000. Deaths from all causes have in the period amounted to 12.7 per 1,000.

Retirements from the service by reason of physical or mental incapacity have ranged from 2 to 20 *per annum*, yielding in the twenty-eight years a mean rate of 8 per 1,000 annually superannuated. Combined with deaths, this will give a ratio of 21 per 1,000 for departure from the service through disease and accident: a very moderate proportion when compared with the military and naval services, where, by the mean of ten years returns of the forces on the home stations, the combined rate was in the Army 43 per 1,000, and in the Royal Navy 37 per 1,000.

TABLE I.—*Comparative View of the Annual Numerical Ratio of Disease and Injury in the Army, Navy, and Customs Force.*

	Mean daily No. per 1000.	Admissions to Sick List per 1000.	Mean Duration of each Case (Days).	Time lost per Man (Days).	Deaths per 1000.	Invaliding per 1000.	Death and Invaliding per 1000.
Army in the United Kingdom (average of 10 years) .....	48	941	18	17	9.5	34	43.5
Navy on the Home Station (average of 10 years) .....	41	944	17	15	9.1	28	37.1
Customs' Force, Port of London (average of 28 years, 1847-74.)	29	700	15.5	11	12.7	8	20.7

In all these services, it is impossible to dissociate mortality and invaliding, seeing that many of the cases invalided for phthisis, etc., terminate in no long time in death; and, in the military services, such cases are discharged at a comparatively early period. In the Customs force it is different, persons afflicted with chronic diseases often being able to continue at some light duty for many months, with occasional absences in severe weather, and so to defer death or superannuation for a considerable time, in like manner to the bulk of the civil population

similarly circumstanced. The ratio of mortality has been tolerably uniform, but that of superannuation has been greatly diminished of late years, more especially for the necessarily fatal diseases. The great majority of those superannuated for rheumatism, insanity, etc., survive for many years afterwards. The combined mortality and superannuation rate for the years preceding 1862 was 24 per 1,000; since that date, it has fallen to 17 per 1,000.\* Superannuations over the age of 60 for senile debility, etc., do not require medical certificate, and are dealt with in the ordinary way, the officers retiring on a pension proportioned, as in other cases, to their length of service.

I purpose now to direct your attention to the numerical ratio of the various classes of disease that have occurred in the period, and their percentage of recovery, death, and superannuation. The tables on which they are founded extend back for eighteen years. They may be, therefore, assumed to give proportionally a fairly accurate idea of the sanitary statistics of 20,000 men for one year. The nosological arrangement which has been in use since 1862 was based on that then extant in the Royal Navy, and differed but little from that afterwards promulgated by the London College of Physicians in 1868, and which was at once introduced into this and other public departments as a convenient standard of nomenclature and classification. To the simple tabulation of cases a column was added for the number of days each case was under treatment, which was obviously necessary in order to obtain a correct estimate of the relative prevalence and importance of each disease. A considerable discrepancy is sometimes found betwixt the proportion of cases and of time under treatment.

Following that classification, we find that, of the general diseases, the febrile class, including exanthems (A), show a ratio of 6 per cent. of the total number of cases, 6.1 per cent. of the whole time lost by sickness, 7 per cent. of the entire mortality, but no superannuation. The constitutional class (B) yield a ratio of 18 per cent. on the number of cases, 26 per cent. on the time lost by sickness, 40 per cent. on the whole mortality, and 49 per cent. of the superannuation.

Of the diseases brought together under this class, the most important are rheumatism and gout and phthisis. Rheumatism and gout together constitute 13.5 per cent. of the number of cases, and 14 per cent. of the time lost by sickness. They show directly an infinitesimal proportion of mortality, less (0.4) than 1 per cent., but no less than 32.7 per cent. of the whole amount of superannuation.

---

\* In 1875, the combined rate was 13 per 1000; the mortality was only 7 per 1000, and, excluding one accidental death, was from disease 6 per 1000.

TABLE II.—*Numerical Ratio of Classes of Disease in Her Majesty's Customs.*

Classes of Disease.	On No. of Cases.	On Time lost.	On No. of Deaths.	On No. of Superannuation.
	Per cent.	Per cent.	Per cent.	Per cent.
1. General Diseases :				
A. Febrile and Zymotic..	6	6	7	0
B. { Phthisis .....	13.5	14	0.4	32.7
Other diseases .....	1.4	8	31	9
2.7	4	7.5	7.5	
2. Local Diseases				
Of Nervous System.....	7.5	9	9	20
Of Circulatory , , .....	1	2	13	1.5
Of Respiratory , , .....	27	20	11	17.7
Of Digestive , , .....	17	13	9	7.5
Of Urinary,etc. , , .....	2.4	3	2.6	0.7
Of Skin and Cellular .....	11.5	10	0	2.7
3. Accidental Injuries and External Violence .....	10	11	9.5	0.7
	100	100	100	100

Phthisis yields 1.4 per cent. of the number of cases, and 8 per cent. of the time lost by sickness; 31 per cent. of the whole mortality, and 9 per cent. of the superannuation.

Proceeding now to the local diseases, we find that the various maladies of the nervous system give 7.5 per cent. of cases treated, and 9 per cent. of time lost by illness; 9 per cent. of the mortality, and 20 per cent. of the superannuation, one-half of which latter proportion is caused by insanity.

Diseases of the organs of circulation show only 1 per cent. on the number of cases, and 3 per cent. on the time lost by sickness; but lesions of the heart and great vessels have caused 13 per cent. of the deaths and 1.5 per cent. of the superannuations.

Diseases of the respiratory organs yield 27 per cent. of the cases treated, and 20 per cent. of the time lost; 11 per cent. of the whole number of deaths, and 17.7 per cent. of the superannuations. Including phthisis (which, in the great majority of the cases that occur in this body of men, may be considered as a local pulmonary rather than a constitutional disease), the maladies affecting the lungs and air-passages yield the large proportion of 28.4 per cent. of the cases, 30 per cent. of the time lost by sickness, 42 per cent. of the whole mortality, and 27 per cent. of the superannuation.

Diseases of the organs of digestion exhibit the ratio of 17 per cent. of cases, 13 per cent. of time lost, 9 per cent. of deaths, and 7 per cent. of superannuations.

Diseases of the urinary organs give only 2.4 per cent. of cases, 3

TABLE III.—Deaths and Superannuations in the Force of Her Majesty's Customs in London in the Years 1857-74, being equal to those occurring in One Year in a Force of 20,000 Men.

	General Diseases.			Deaths.	Super-annuation.	Total.	Ratio per 10,000 Men.
A.	Typhus fever ..	..	..	6	0	6	3
	Enteric fever ..	..	..	1	0	1	3
	Relapsing fever ..	..	..	1	0	1	3
	Remittent fever ..	..	..	1	0	1	3
	Small-pox ..	..	..	5	0	5	23
	Cholera ..	..	..	2	0	2	1
	Erysipelas ..	..	..	2	0	2	1
	Rheumatism ..	..	..	0	38	38	19
	Gout ..	..	..	1	4	5	23
	Cancer ..	..	..	6	1	7	33
B.	Tuberculosis ..	..	..	2	0	2	1
	Phthisis ..	..	..	71	12	83	413
	Syphilis ..	..	..	1	0	1	3
	Dropsy, from complex diseases ..	..	..	10	1	11	53
	Diabetes ..	..	..	1	0	1	3
	Pyæmia ..	..	..	1	0	1	3
	Leucocythaemia ..	..	..	1	0	1	3
Local Diseases.							
Diseases of the Nervous System.	Apoplexy ..	..	..	6	1	7	33
	Paralysis ..	..	..	4	5	9	43
	Epilepsy ..	..	..	4	4	8	4
	Brain-disease ..	..	..	4	0	4	2
	Delirium tremens ..	..	..	3	0	3	13
	Insanity ..	..	..	0	14	14	7
Diseases of Circulation.	Loss of vision ..	..	..	0	3	3	13
	Disease of heart ..	..	..	24	2	26	13
	Aneurism ..	..	..	4	0	4	2
	Embolism ..	..	..	1	0	1	3
Diseases of Respiration.	Senile catarrh ..	..	..	0	2	2	1
	Bronchitis ..	..	..	11	17	28	14
	Pneumonia ..	..	..	8	0	8	4
	Pleurisy ..	..	..	3	0	3	13
	Hydrothorax ..	..	..	3	0	3	13
	Asthma ..	..	..	0	4	4	2
Diseases of Digestion.	Quinsy ..	..	..	0	1	1	3
	Dyspepsia ..	..	..	0	3	3	13
	Gastritis ..	..	..	1	0	1	3
	Diarrhoea ..	..	..	1	0	1	3
	Dysentery ..	..	..	4	0	4	2
	Melæna ..	..	..	0	1	1	3
	Jaundice ..	..	..	1	0	1	3
	Disorder of liver ..	..	..	7	2	9	43
	Hernia ..	..	..	0	2	2	1
	Nephritis ..	..	..	2	0	2	1
Diseases of the Urinary Organs.	Bright's disease ..	..	..	3	0	3	13
	Cystitis ..	..	..	1	0	1	3
	Urinary calculus ..	..	..	0	1	1	3
	Disease of Bone ..	..	..	0	3	4	2
Miscellaneous.	Spinal disease ..	..	..	1	1	1	3
	Debility ..	..	..	0	4	4	2
	Atrophy ..	..	..	0	1	1	3
	Ulcers ..	..	..	0	1	1	3
Violence.	Fracture, etc. ..	..	..	7	1	8	4
	Drowned ..	..	..	11	0	11	53
	Suicide ..	..	..	4	0	4	2
				230	130	360	180

per cent. of time lost, 2.6 per cent. of deaths, and less than 1 per cent. of superannuations.

Affections of the skin and cellular tissue occur in the proportion of 11.5 per cent. of cases and 10 per cent. of time lost by illness ; but no death and only two superannuations (from ulcers) have to be recorded under this head.

Injuries of various kinds and of every degree of severity are necessarily of frequent occurrence, from the nature of the duties of those officers, more particularly afloat. They constitute 10 per cent. of the cases disabled, and 11 per cent. of the whole time lost in illness by the force. Deaths from violence form 9.5 per cent. of the entire mortality, of which 3 per cent. are the result of fractures, etc., 4.7 per cent. are from accidental drowning, to which the out-door officers and watermen are especially liable in following their vocation, and 1.8 per cent. are due to suicide. The ratio of superannuation from external injury does not amount to 1 per cent.

#### GENERAL SUMMARY.

In reviewing these figures, it is obvious that pulmonary and rheumatic diseases are those which, as might be expected in a climate which for eight months in the year is more or less wintry, prove most destructive, nearly one-half of the sickness and mortality of the force being due to those diseases ; for, although rheumatism and gout are rarely fatal *per se*, they are too often the precursor of heart-disease, bronchitis, and dropsical effusions, which, next to phthisis, are the maladies which show the largest mortality. In about one-half of such cases occurring in persons above middle age, I find a history of former arthritic disease. Gout appears to be unusually prevalent in this body of officers, averaging 6 per cent. on the total number of cases, and 5 per cent. on the time lost by sickness, and the watermen are the class most liable to it, although they are temperate in the use of fermented liquor, and their duties are of a very active, exposed, and arduous character. The attacks seem to be irrespective of age or personal habits ; often most severe in abstemious men ; but, in the majority, gout is of hereditary origin, and very remarkably influenced by weather. In last year, no fewer than forty cases of true gout occurred in the force, chiefly in the warmer months, when a humid state of the atmosphere had succeeded suddenly to dry weather. The mean duration of such cases is eleven days, that of rheumatism being twenty-four days.

Pulmonary consumption, the most formidable in its mortality aspect

of all our diseases, is probably less fatal in this force than in most other bodies of men of similar age. It exacts four lives per 1,000 annually, the average age of its victims being 41 years. In the army, 7 per 1,000, and in the navy 5.5 per 1,000, is the combined death and invaliding rate of this fell disease.

Cancer is of rare occurrence in the Customs force, having in the period not exceeded the rate of 0.3 per 1,000 men. Diabetes is also extremely infrequent, showing only one death and one now under treatment : a rate equivalent to 0.1 per 1,000, or 1 per 10,000 men.

Brain-diseases yield a death-rate of 1 per 1,000 men, and a superannuation-rate of 1.5 per 1,000. Heart-disease and aneurism exhibit a mortality of 1.5 per 1,000 men, the average age being 48 years. Other chest-diseases, exclusive of phthisis, present a death-rate of 1.2 per 1,000 men. Bronchitis and pneumonia are the chief causes of mortality.

Diseases of the digestive organs are fatal only in the ratio of 0.8 per 1,000. One instance occurred of leucocythaemia. Disease of the liver and dysentery were the chief causes of deaths in this class.

Diseases of the kidneys and bladder are likewise rare or terminate fortunately, the death-rate not exceeding 0.3 per 1,000 men, or 3 per 10,000.

In some cases of complex organic disease, involving equally various viscera, and attended with serous effusion, the deaths have been tabled as dropsy, and amount to 5 in 10,000.

Deaths by accident or violence somewhat exceed the rate of 1 per 1,000 ; but I have already referred to them, and apportioned their causes.

We now come, in the last place, to the extensive group of zymotic diseases, which, all-important as they are to the general, and more especially to the youthful population, will be found to affect comparatively little the adult male community, when contrasted with the disability and death induced by constitutional and organic disease, exhibiting only 6 per cent. of the whole amount of sickness, and 7 per cent. of the entire mortality. The zymotic death-rate does not reach 1 in 1,000 (0.9), yet no epidemic has visited the eastern and southern suburbs of London, where the large majority of the Customs officers reside, without their being, however slightly, affected by it ; and typhus, relapsing fever, and small-pox have all claimed their victims in these visitations. Small-pox was especially destructive in 1870-71-72, when it inflicted an annual loss to the extent of nearly 2 per 1,000 men.

One-fourth of the cases terminated fatally, of whom all had been vaccinated, some had been revaccinated, and others had been a few years before freely exposed to the contagion without injury : a proof of the peculiarly malignant potency of the variolous poison in the last epidemic.

Only two cases of fatal cholera are recorded in the last eighteen years, presumably sporadic. One occurred in 1861, when no epidemic existed in or near this country ; the other in 1866, the year of the last outbreak of cholera ; but it was apparently self-induced by the officer, who, although in good health, had taken of his own accord a powerful purgative. Violent catharsis degenerated into decided cholera, and, through consecutive fever, destroyed life. No other case occurred in the force, although many resided in the stricken districts or on board vessels from infected ports ; but there was in that summer a greater amount of severe bowel-complaint than I have seen before or since, the ratio of cases of diarrhoea having been as high as 70 per 1,000 men, or four times the normal average.

The almost entire exemption of the Gravesend officers from zymotic disease is very remarkable. It is their duty to board and live for a time in all vessels from abroad, and they are daily brought into the most intimate contact with crew, passengers, and cargo of every ship on arrival ; yet there is not an instance on record for many years of any of these officers having contracted in his vocation any reputedly contagious malady. No more satisfactory proof could be adduced of the general healthiness of the port of London in relation to its enormous foreign trade, or of the satisfactory sanitary condition of the Customs officers employed on this service.

In conclusion, I would beg leave to observe, in regard to this somewhat dry accumulation of statistical facts, that in one respect they possess a peculiar advantage ; viz., uniformity and exactness in the numerical details, reaching over many years, on which they are founded ; and, as I believe the diagnostic data and calculations to be as accurate as the nature of the subject will possibly admit, I venture to hope it may be favourably received as a contribution to our knowledge of the sanitary condition of the industrious adult male middle-class population of the country, and may even prove serviceable, by affording an estimate of the quantity and quality of sickness probably existing among them, and so may conduce to the sounder and more equitable management of those institutions for mutual help which, though admirable in conception, so often result in failure and disappointment to their members through sanitary miscalculation.